Mr. Warren Ewalt
Caterpillar, Inc
3701 State Road 26 East
Lafayette, IN 47905

Re: 157-14260-00044
Minor Source Modification to:
Part 70 permit No.: T157-7594-00044

Dear Mr. Ewalt:

Caterpillar, Inc was issued Part 70 operating permit T157-7594-00044 on July 13,1999 for a stationary internal combustion engine manufacturing process. An application to modify the source was received on April 10, 2001. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

Six (6) trailer mounted generator sets, identified as Power Generators 1-6, located east of Building N, each rated at 1825 kw (prime power) with a maximum fueling rate of 123.9 gallons of No.2 diesel fuel per hour (0.5 sulfur content)

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall

not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

The source may begin construction and operation when the minor source modification has been issued. Operating conditions shall be incorporated into the Part 70 operating permit as a minor permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for Ghassan Shalabi or extension (3-0431), or dial (317) 233-0431.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments
Technical Support Document
GAS
cc: File - Tippecanoe County
Tippecanoe County Health Department
Air Compliance Section Inspector Eric Courtright
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Part 70 Source Modification.

Source Background and Description

Source Name:	Caterpillar, Inc
Source Location:	3701 State Road 26 East, Lafayette, Indiana 47905
County:	Tippecanoe
SIC Code:	3519
Operation Permit No.:	T 157-7594-00044
Operation Permit Issuance Date:	July 13, 1999
Minor Source Modification No.:	157-14260-00044
Minor Permit Modification No. :	157-14388-00044
Permit Reviewer:	Ghassan Shalabi

The Office of Air Quality (OAQ) has reviewed a modification application from Caterpillar, Inc relating to the construction of the following emission units and pollution control devices:

Six (6) trailer mounted generator sets, identified as Power Generators 1-6, located east of Building N, each rated at 1825 kw (prime power) with a maximum fueling rate of 123.9 gallons of No.2 diesel fuel per hour (0.5 sulfur content).

History

On April 10, 2001, Caterpillar, Inc submitted a Temporary Operation request to the OAQ requesting to install six (6) trailer mounted generator sets, each rated at 1825 kw (prime power) with a maximum fueling rate of 123.9 gallons of No.2 diesel fuel per hour. Caterpillar, Inc was issued a Part 70 permit on July 13, 1999. Caterpillar, Inc was issued a Temporary Operation permit on May 1, 2000 for Six (6) trailer mounted generator sets, each rated at 1600 kw with a maximum fueling rate of 133.4 gallons of No.2 diesel fuel per hour (0.5 % sulfur content).

The OAQ has determined that this modification does not qualify for approval as a temporary operation because:

Pursuant to 326 IAC 2-1.1-3 (g)(3), to qualify as a temporary operation the purpose of the construction, reconstruction, or modification is limited to :
(i) Collecting data for experimental purpose
or
(ii) Temporarily conducting an operation not considered part of the normal operation or production of the facility or source.

The proposed operation is not experimental, and the source was issued a temporary operation permit in the past as mentioned above, in addition the USEPA addressed the use of emergency generators by allowing the calculations of the PTE to be based on 500 hrs instead of 8760 hrs per

year since theses generators are used as emergency back-up units to maintain the normal operation of the source.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
Stack 1	Power Generator 1	13' 4"	1.5	14507	901
Stack 2	Power Generator 2	13' 4"	1.5	14507	901
Stack 3	Power Generator 3	13' 4"	1.5	14507	901
Stack 4	Power Generator 4	13' 4"	1.5	14507	901
Stack 5	Power Generator 5	13' 4"	1.5	14507	901
Stack 6	Power Generator 6	13' 4"	1.5	14507	901

Recommendation

The staff recommends to the Commissioner that the Part 70 Minor Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on April 10, 2001.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (2 Pages)

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	2.6
PM-10	1.5
SO_2	14.8
VOC	2.6
CO	20.3
NO_x	88.1

HAP's	Potential To Emit (tons/year)
Total	0.107
TOTAL	0.107

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Minor Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5 (d)(5). Annual emissions are limited to less than twenty five (25) tons per year through a limitation on fuel usage. Since the Part 70 permit has been issued, this approval is for construction only. The minor permit modification (157-14388-00044) will give the source approval to operate the modification.

County Attainment Status

The source is located in Tippecanoe County.

Pollutant	Status
PM-10	Attainment
SO_2	Attainment
NO_2	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Tippecanoe County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Tippecanoe County has been classified as attainment or unclassifiable for PM-10, SO2, NO2, Ozone, CO, and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive PM emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	50.7

PM-10	49.3
SO_2	276
VOC	398
CO	313
NOx	548

(a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

(b) These emissions are based upon the limited potential to emit table of the Technical Support Document (TSD) to Source Modification 157-12768-00044.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)						
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Six (6) trailer mounted generator sets	0.8	0.4	3.9	0.7	6.6	24.9	0.107
PSD significant Levels for proposed modification	25	15	40	40	100	40	-

(a) This modification to an existing major stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

(b) The NOx is limited to less than (25) tons/yr, therefore, 326 IAC 2-7-10.5 (f) requirements do not apply. This limit is equivalent to less than 114412.87 gallon of No.2 diesel fuel per year based on a 12 consecutive months.

(25[ton/year]*2,000[lb/ton]*(1/3.2[MMBtu/lb])*(1/19,300[lb/Btu])*(1,000,000[Btu/MMBtu])*(1/7.076[gal/lb])
=114412.87 gallon per year

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60)

applicable to this proposed modification.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability - Individual Facilities

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitation), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 7 (Sulfur Dioxide Rules)

The potential to emit of the six (6) trailer mounted generator sets is less than twenty five (25) tons per year and less than ten (10) pounds per hour of sulfur dioxide, therefore 326 IAC 7 does not apply.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

The Six (6) trailer mounted generator sets have applicable compliance monitoring conditions as specified below:

The #2 diesel fuel usage to all the six (6) trailer mounted generators shall be limited to less than 114412.87 gallons per year based on a 12 consecutive months.

This monitoring condition is necessary to insure that 326 IAC 2-7-10.5 (f) requirements does not apply.

Part 70 Operating Permit Changes

The Title V Permit was revised to add the Six (6) trailer mounted generator sets in sections A.2 and D.6. Condition D.6.1 was also added to indicate the fuel limit to these units.

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Minor Source Modification No. 157-14260-00044 and minor permit modification No. 157-14388-00044

Appendix A: Emission Calculations
Internal Combustion Engines - Diesel Fuel
Turbine (>600 HP)

Company Name: Caterpillar, Inc
Address City IN Zip: 3701 State Road 26 East
CP#: 157-14260
CP#: 157-14388
Plt ID: 157-00044
Reviewer: Ghassan Shalabi
Date: 5-8-2001

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity
MM Btu/hr

102.8

S= 0.5 = WEIGHT % SULFUR

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.0573	0.5 *(1.01S)*	3.2 **see below	0.1	0.85
Potential Emission in tons/yr	2.6	1.5	13.0	82.2	2.3	21.8

	HAP's						
	Benzene	Toluene	Xylene	Propylene	formaldehyde	Acetaldehyde	Acrlein
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04 *(1.01S)*	2.8E-03	7.89E-05	2.52E-05	7.88E-06
Potential Emission in tons/yr	0.020	0.007	0.005	0.072	0.002	0.001	0.0002

**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

**NOx emission factor: uncontrolled = 0.024 lb/hp-hr, controlled by ignition timing retard = 0.013 lb/hp-hr
Note that the PM10 emission factor in lb/hp-hr is not provided in the Supplement B update of AP-42.
An average conversion factor of 1hp-hr = 7,000Btu is provided below.

Methodology

Emission Factors are from AP 42 (Supplement B 10/96)Table 3.4-1 and Table 3.4-2
1 hp-hr = 7000 Btu, AP42 (Supplement B 10/96), Table 3.3-1, Footnote a.
Emission (tons/yr) = [Heat input rate (MMBtu/hr) x Emission Factor (lb/MMBtu)] * 500 hr/yr / (2,000 lb/ton)
*No information was given regarding which method was used to determine the PM emission factor or whether condensable PM is included. The PM10 emission factor is filterable and condensable PM10 combined.

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Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

updated 4/99

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Plt ID: 157-00044
Reviewer: Ghassan Shalabi
Date: 5-8-2001

Emissions calculated based on heat input capacity (MMBtu/hr)

Heat Input Capacity
MM Btu/hr

31.1

S= 0.5 = WEIGHT % SULFUR

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMBtu	0.1	0.0573	0.5 *(1.01S)*	3.2 **see below	0.1	0.85
Potential Emission in tons/yr	0.8	0.4	3.9	24.9	0.7	6.6

	HAP's						
	Benzene	Toluene	Xylene	Propylene	formaldehyde	Acetaldehyde	Acrlein
Emission Factor in lb/MMBtu	7.76E-04	2.81E-04	1.93E-04 *(1.01S)*	2.8E-03	7.89E-05	2.52E-05	7.88E-06
Potential Emission in tons/yr	0.006	0.002	0.002	0.022	0.001	0.000	0.0001

**NOx emissions: uncontrolled = 3.2 lb/MMBtu, controlled with ignition timing retard = 1.9 lb/MMBtu

**NOx emission factor: uncontrolled = 0.024 lb/hp-hr, controlled by ignition timing retard = 0.013 lb/hp-hr
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Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

updated 4/99